

The process of the Conciliation

Demographics in Mexico, 1950-2015

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Introduction

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components of demographic dynamics

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Whenever sources of information are available that

They list the total population of the country, the projections-

Population figures should be updated to provide decision-makers with tools that allow for the closest possible approximation of population size and distribution. However, due to the characteristics of the information available in Mexico, before attempting such a practice, a demographic reconciliation must be carried out. This exercise seeks to reconcile the figures provided by different sources of information, thus starting from consistent data that allows for reliable estimates.

To carry out this reconciliation, the General Secretariat of the National Population Council (SG-Conapo) used an open procedure involving experts and representatives from the institutions responsible for calculating the figures (see Annex 1 in the electronic version). The support of the United Nations Population Fund (UNFPA) was essential.

To achieve the collaboration of El Colegio de México (Colmex) and the Mexican Society of Demography (Somedem), which, together with Conapo, successfully completed this project. The lead researcher was Dr. Virgilio Partida Bush (Flacso-México), with the collaboration of Dr. Marta Mier y Terán (IISUNAM) on the topic of fertility.



This text aims to share the technical process¹ and the interaction between the institutions, groups and sectors that participated in the conciliation.

The process

A reconciliation is proposed to seek agreement between the trends of

the components of the demographic dynamics with the population by age and sex, listed in the censuses, counts and surveys of the country.

In addition to the importance of the process for generating projections, reconciliation is a relevant exercise in demographic work; it has a high degree of complexity and must be carried out continuously and permanently because it allows for the evaluation of the quality of the information available.² For the public and academic sectors, reconciliation is an activity that generates population figures harmonized with past and present demographic dynamics, and with sociodemographic indicators that allow for an approach to the living conditions of the population.

On this occasion, the national reconciliation was carried out for the period 1950-2015, using information from the Censuses of Population from 1950 to 2010, the Population Counts of 1995 and 2005 and the 2015 Intercensal Survey; at the state level the period 1970-2015 was considered (Partida, 2017).

The work was carried out in two stages. First, the national population was established; then, the federal entities were coordinated. This means that once the national population was reconciled, and considering the impact of demographic phenomena, state estimates were made. These estimates identify distributions that account for the heterogeneity of the federal entities in order to establish, for each one, the population size, births, deaths, and migration. The final result is considered the base population for making population projections.

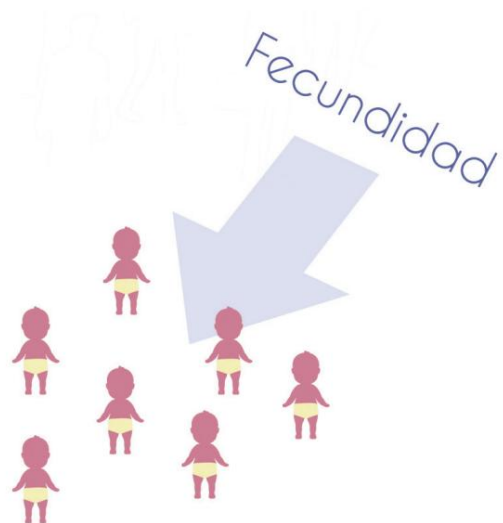
Initially, the possible misstatement of age as well as omission was assessed.

census, either because the occupants could not be contacted in some dwellings or because the informant "forgot" to declare

to some resident. For the non- census dwellings, the 2010 post-operational census exercise on the situation of the dwellings was taken as a reference, from which the number of occupants and the age and sex composition are derived, data that at some point in the census exercise were considered "pending"; their composition was taken from them, assigning to the census exercises and counts since 1990.

Regarding age underreporting, two situations arise: unspecified age and a preference for certain digits. The proportion of the population that did not report their age is negligible; therefore, a random error is assumed, and it is prorated based on the reported age structure. To correct for the preference for a particular digit, the behavior of this aspect was first observed by applying the *Myers index* (Myers, 1940) to the population aged 3 to 102 years (the population under three years of age was excluded due to the characteristic omission of this population group). When comparing the results across different censuses, counts, and surveys, a slight improvement is observed; however, the need to smooth and correct this underreporting is clear. This was achieved using the *successive moving average algorithm* of Alan Gray (1987), a procedure that was performed for each federal entity and sex separately and for all the statistical exercises considered in this project. Before this procedure was carried out, cohort effects were discounted.

To obtain the estimates of the Mortality levels and trends were estimated using demographic methods that corrected for information deficiencies from data sources reporting this event (underreporting and misreporting of age). Mortality for children under one year of age and for the population between one and four years of age was estimated using different age groups ;3 for these groups, misreporting of age and the mortality level were corrected by applying the model proposed by Bennett and Horiuchi (1981) and linear regression with the general model.



For fertility, data on births occurring in

The country obtained from censuses, surveys, vital statistics, and birth certificates. The level and age structure resulting from calculating age-specific fertility rates based on each of these sources were analyzed.

Fertility rates were obtained with

Based on each source of information, those that best represented the behavior of the phenomenon were selected; then an arithmetic average was performed, and to eliminate some inconsistencies, a smoothing was done .

International migration estimated in the

The reconciliation was based on information from the Population Censuses of

Mexico, 1960 to 2010, national household surveys , the United States censuses, from 1950 to 2000, and the *American Community Survey* (ACS). The reconciliation considered information from the national censuses to estimate the number of immigrants and some emigrants, supplementing these with information from U.S. sources.

for the period 1950-2015. Based on these data, migration flows for the period considered are reconstructed using retrospective methods in order to identify migration flows of nationals to the neighboring country.

By reconstructing national demographic dynamics , it is possible to evaluate the coverage of censuses, counts, and surveys when

Demographic reconciliation by age and sex is performed, and the established assumptions for each phenomenon are applied . Based on the national reconciliation, the following was carried out: state, which is more complex due to the disaggregation required for the estimates, and because the quality of the information sources is less precise, in addition to the fact that interstate migration is involved.

Due to the importance of demographic reconciliation, four workshops were held on information sources, estimates, and trends in internal and international migration, fertility, and mortality. These workshops were organized by the SG-Conapo, El Colegio de México, and Somede, with support from UNFPA. Participants also included members of academia and officials from the National Institute of Statistics and Geography (Inegi), the Ministry of Health (SS), the Migration Policy Unit (UPM) , and the National Migration Institute (INM), among others. The workshops deepened the understanding of the quality and timeliness of information sources that provide data on the components of demographic dynamics, and the results of recent research on estimating the level were presented.

and the trend of each of them, in order to establish parameters that would serve as inputs for the Reconciliation.⁴

At the same time, in the Specialized Technical Committee on Population and Demographic Dynamics (CTEPDD) three working subgroups were created

aimed at contributing

Information for the conciliation process ;
representatives of the institutions that are members
of this Committee participated there
(see Annex 1 in the electronic version).
The first subgroup was dedicated to
analyzing the results of the intercensal
survey to evaluate the estimates from this
exercise, as this is the basis for making
the projections; another subgroup
reviewed the method and estimation of
the infant mortality rate, an indispensable
input for reconciliation; the last subgroup
worked on relevant aspects of international
migration.

What's next?

The main results of the demographic
reconciliation were presented in early
2017. To ensure the continuity of the
process, the participation of representatives
from the agencies that make up Conapo
and from academia will be considered, so
that the population projections are reliable
and allow for demographic, economic,
and social planning in accordance with
the main needs of the Mexican population.

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MORTALIDAD

Grades

¹ The details of this will be published in the document “Demographic Reconciliation of Mexico 1950-2015” prepared by Dr. Virgilio Partida Bush. In this issue of *Coyuntura*, an abridged version of this work is presented, entitled “*What Demographic Reconciliation Tells in Mexico, 1950-2015*”.

² Despite the importance of this exercise, it has only been carried out twice.

3. Due to the underreporting of infant deaths (0 to 4 years), particularly among children under one year old, it is more appropriate to use pregnancy histories from surveys and those obtained through indirect methods to estimate child mortality, considering only deaths of minors recorded in vital statistics as supporting data and reference points. For further details, see Chapter 2, “National Mortality,” of the publication *Demographic Reconciliation of Mexico 1950–2015*, prepared by Dr. Virgilio Partida Bush.

4 For more details, see: <https://youtube/gGcGsrcMVnic>.

References

Bennett, NG and S. Horiuchi (1981),
"Estimating the completeness of death
registration in a closed population." *Population
Index*, Vol. 47, No. 2, pp. 207-221.

Gray, A. (1987),
"The Missing Ages: Adjusting for Digit
Preference". *Asian and Pacific Population
Forum*, Vol. 1, No. 2, Feb. 1987.

Myers, RJ (1940),
"Errors and Bias in the Reporting of Ages in
Census Data", *Transactions, Actuarial Society
of America*, Vol. 41, Part 2, No. 104, October-
November 1940, pp. 395-415.

Partida, V. (2017),
*Demographic reconciliation of Mexico 1950-
2015*. Mexico, National Population Council, El
Colegio de México, Mexican Society of
Demography and United Nations Population
Fund. In editing for forthcoming publication.